

A COMPUTER MODEL FOR VOLCANO HAZARDS VISUALIZATION

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It is estimated that over 500 million people live on or near potentially active volcanoes. We can expect a yearly toll of loss of life and property damage from eruptions. Mitigation of these losses is the primary objective of this presentation. Work has focussed on Popocatepetl Volcano outside of Mexico City where more than 30 million people live within 70 km of Popo. In 1994, Popo reawoke with moderate explosions and ash deposits, and formation of a dome. Our previous work in the last 4 years has completely detailed Popo's recent eruptive history: in 822 AD a cataclysmic Plinian eruption spread ash, pyroclastic flows and massive lahars around the volcano, decimating local cities, disrupting agriculture, and ending the Classical Period; a similar eruption occurred 2500 yBP. Based on our mapping, a general hazards map was produced by the Mexican Ministry responsible for natural disaster mitigation. We are developing a hazards visualization tool for use by the Ministry, and by other scientists and government agencies. We combine unique capabilities of the JPL Digital Image Animation Lab, satellite imagery, digital terrain data, and physical flow models. A user will be able to specify source parameters, and the model will produce 3-D animations of volcanic eruption phenomena. These animations will be used by the Mexican Civil Protection to educate the local populace, to plan mitigation measures before eruptions, and to more effectively plan logistical measures for responding to future eruptions